2/6/92

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D163021
DP BARCODE (RECORD)

128834
SHAUGHNESSY NO.

REVIEW NO.

EEB REVIEW

DATE IN: 4/15/91 OUT: 2/6/92
CASE #: 000478 REREG CASE #:
SUBMISSION #: S393578 LIST A,B,C,D
ID#: 042545-EUP-G

DATE OF SUBMISSION: 01/29/91

DATE RECEIVED BY EFED: 04/09/91

SRRD/RD REQUESTED COMPLETION DATE: 06/16/91

EEB ESTIMATED COMPLETION DATE:

SRRD/RD **ACTION** CODE/TYPE OF REVIEW: 710 EUP-NC-F/F USE

MRID #(S): None Assigned

DP TYPE: 001 - SUBMISSION RELATED DATA PACKAGE

PRODUCT MANAGER, NO.: CYNTHIA GILES-PARKER, 22

PRODUCT NAME: LENTAGRAN (TOUGH-45 WP)

TYPE PRODUCT F R I N H D: HERBICIDE

COMPANY NAME: AGROLINZ, INC.

SUBMISSION PURPOSE: Review request for EUP on cabbage

INCLUDE USE(S)

COMMON CHEMICAL NAME: PYRIDATE

2050384

BARCODE: D163021

CASE: 000478 DATA PACKAGE RECORD DATE: 10/10/91
SUBMISSION: S393578 BEAN SHEET Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: EUP (SECT 5) ACTION: 710 EUP-NC-F/F USE
CHEMICALS: 128834 PYRIDATE (ISO and BSI approved common name) 45.0000%

ID#: 042545-EUP-G
COMPANY: AGROLINZ, INC
PRODUCT MANAGER: 22 CYNTHIA GILES-PARKER 703-557-8540 ROOM: CM2 251
PM TEAM REVIEWER: DOLPHINE WILSON 703-557-3483 ROOM: CM2 255
RECEIVED DATE: 01/29/91 DUE OUT DATE: 05/29/91

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 163021 EXPEDITE: N DATE SENT: 03/28/91 DATE RET.: / /
CHEMICAL: 128834 PYRIDATE (ISO and BSI approved common name)
DP TYPE: 001 Submission Related Data Package
ADMIN DUE DATE: 06/16/91 CSF: N LABEL: Y

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	04/09/91	/ /
BRAN: EEB	/ /	/ /
SECT: IO	/ /	/ /
REVR :	04/15/91 (9/17/91)	02/06/92
CONTR:	/ /	/ /

* * * DATA REVIEW INSTRUCTIONS * * *

Please review request for EUP and temporary tolerance on cabbage. Please determine if available data in the EEB files will support this EUP and temporary tolerance.

Most of the data was submitted either with the pending Section 3 applications (42545-LG and 42545-LE) or previous EUP (42545-EUP-1 and 42545-EUP-2).

Attached:
Section B - label
Section C - Tox. and ecological data (cited)
Section D - Env. fate and residue data (cited)
Section E - product performance
Section F - tolerance proposal
Section G - Proposed EUP program

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
163019	RSB/PCRS	03/28/91	06/16/91	Y	Y	Y
163020	FHB/PMT-21	03/28/91	06/16/91	Y	N	Y
163022	EFGB/CRS1	03/28/91	06/16/91	Y	N	Y
163023	TB-2/IO	03/28/91	06/16/91	Y	N	Y
163024	TSCB/IO	03/28/91	06/16/91	Y	N	Y

ECOLOGICAL EFFECTS BRANCH REVIEW

Chemical: Lentagran (Tough 45 WP; 45% pyridate)

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

Agrolinz, Inc., has applied for an Experimental Use Permit (EUP) to conduct field testing with Tough-45 WP herbicide for a two year period on cabbage. The product will be evaluated for its effectiveness in controlling broadleaf weeds. Varietal differences and geographical and climactic effects will also be evaluated.

100.2 Formulation Information

Refer to attached photocopies of labels. (Attachment B)

100.3 Application Methods, Directions, Rates

Refer to attached photocopies of labels.

100.4 Target Organisms

The target weeds to be evaluated in this program include, but are not limited to:

Nutsedge	Lambsquarters
Ragweed	Giant ragweed
Sicklepod	Smartweed
Sunflower, wild	Morningglory spp.
Jimsonweed	Redroot pigweed
Mustard	Black nightshade
Buckwheat, wild	Cocklebur
Kochia	

100.5 Precautionary Labeling

Refer to attached photocopies of labels.

100.6 States and Acreage Planned

State	Formulation(lbs)	a.i.(lbs)	acreage
WI	2000	900	1000
IN	1000	450	500
IL	1000	450	500
TX	1000	450	500
NC	1000	450	500
FL	1000	450	500
MI	1000	450	500
CO	1000	450	500
NY	1000	450	500
OH	1000	450	500
TOTAL	11000	4950	5500

101 Hazard Assessment

101.1 Discussion

Pyridate will be used on 5,500 acres during a 2-year experimental use period to evaluate the control of a broad spectrum of weeds in cabbage crops. The maximum application rate will be 2 lbs of Lentagran per acre (0.9 lbs a.i. per acre). There will be a single post-emergent application. All applications are planned using ground equipment. Plots will range in size from 2 to 10 acres with replicates where feasible. Specific states and treated acreage proposed are listed in Attachment C.

101.2 Likelihood of Adverse Effects to Nontarget Organisms

Terrestrial Species

Ecological effects toxicity data for pyridate technical are as follows:

Avian acute oral LD_{50}:
Quail LD_{50} 1269 mg/kg - "slightly toxic"
Category: Core.

Avian dietary LC_{50} (upland gamebird):
Quail LC_{50} >5000 ppm - "practically non-toxic"
NOEL <5000 ppm
Category: Core

Avian dietary LC_{50} (waterfowl):
Mallard LC_{50} >5000 ppm - "practically non-toxic"
NOEL <5000 ppm
Category: Core

Mammal acute oral toxicity studies:
Laboratory rat LD_{50}=2330 mg/kg for both sexes combined (2205 mg/kg for males and 2377 mg/kg for females)

Aquatic Organisms

Acute Freshwater Fish Toxicity:
Warmwater: Bluegill sunfish LC_{50}>2.0 mg/L "moderately toxic". NOEL =2.0 mg/L
Category: Core

Coldwater: Rainbow trout LC_{50}>1.2 mg/L "moderately toxic". NOEL = 1.0 mg/L.
Category: Core.

Acute Freshwater Invertebrate Toxicity:
Daphnia magna: EC_{50}=1.08 mg/L "moderately toxic".
Category: Core.

Marine/Estuarine Invertebrate Toxicity
Quahog: EC_{50}=145 ppb "very highly toxic"
Category: Core

Environmental Fate and Residues

Hydrolysis: Pyridate hydrolyses rapidly to its degradate CL-9673.

Adsorption-desorption: Two leaching studies on 7 soil types were conducted. Adsorption Kd values ranged from 0.3-3.45. The author concluded that adsorption of CL-9673 increases with increasing percentage of organic matter and decreasing soil pH.

Soil metabolism: Pyridate rapidly hydrolyses to CL-9673, which was found to degrade in soil aerobically with a half-life of 10-27 days.

The Estimated Environmental Concentrations of Pyridate based on a maximum application rate of 0.9 lb a.i./acre applied as a post-emergence spray are as follows:

Vegetation Residues[1] (Maximum expected values immediately after application)

Short rangegrass	220 ppm
Long grass	100 ppm
Leafy crops	110 ppm
Forage (and small insects)	52 ppm
Legumes and pods (large insects)	10 ppm

Soil Residues[2]

0.1 inch	19.8 ppm
1.0 inch	1.98 ppm
6.0 inches	0.32 ppm

Water (direct application)[2]

0.5 feet	661 ppb
1 foot	331 ppb
6 feet	55 ppb

Water (runoff) (See Attachment A). Based on 2% runoff due to solubility = 1.25 ppm

6" depth	132 ppb
1 foot depth	67 ppb
6 feet	**11 ppb**

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[1]Hoerger, F.D. and E.E. Kenaga. 1972. Pesticide Residues on Plants: Correlation of Representative Data as a Basis for Estimation of Their Magnitude in the Environment. Environmental Quality. Academic Press, New York, I:9-28.

[2]Urban, D. and N. Cook. 1986. Ecological Risk Assessment. EPA-540/9-85-001).

Risk assessment

A. Effects on terrestrial organisms:
Avian: Based on the toxicity data, Lentagran does not pose a concern for avian species for the proposed use, as the exposure is expected to be below the avian LD_{50} and LC_{50}s of 1269 mg/kg (acute) and 5000 ppm (dietary).

Mammalian: The exposure is expected to be well below the rat LD_{50} of 2205 mg/kg. Therefore, there is no concern for mammalian species for the proposed application rate and use.

B. Effects on aquatic organisms: The EEC for a 6 feet deep pond was used for this EUP (R. Lee, pers. comm.). Based on this value (11 ppb) there is no concern for aquatic organisms, with the exception of endangered aquatic invertebrates (endangered species trigger =7.25 ppb, based on the Quahog EC_{50}). A discussion of the hazard to endangered species is included below.

C. Endangered species consideration: The EEC from runoff into a 6 feet deep pond exceeds the endangered species trigger for marine/estuarine invertebrates. However, for this use (cabbage), the only endangered species of aquatic invertebrates in the proposed use areas are the Higgin's eye pearly mussel (Whiteside co., IL); the Fat Pocketbook mussel (Knox co., IN); Pink Mucket pearly mussel and Fanshell mussel (Washington co., OH); and the Dwarf Wedge mussel and Tar River spiny mussel (Johnston and Edgecombe cos, NC). For this particular use, however, there is no concern for these species, as they inhabit fresh, **running** water (L. Turner, pers. comm.). Levels of pyridate from runoff into running water should not exceed the endangered species trigger; however, in still water (e.g. ponds), this trigger will be exceeded (R. Lee, pers. comm.).

101.4 Adequacy of Toxicity Data
EEB has sufficient data to support this EUP. However, to support Section 3 Registration of Lentagran, the following data must be submitted:
122-1(a) Tier I Seed Germination/Seedling Emergence
122-1(b) Tier I Vegetative Vigor
122-2 Tier I Aquatic Plant Growth

101.5 Adequacy of Labeling
Environmental hazards labeling is adequate for use under Experimental Use Permit.

102 Conclusions
EEB has completed a hazard assessment for the use of

pyridate as Lentagran (Tough 45 WP) to control broadleaf weeds and grasses in cabbage. EEB has determined that no hazard to aquatic or terrestrial organisms exists from the proposed use. The existing data base supports this EUP but is **not** sufficient for full registration of Lentagran (Tough 45-WP).

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Literature Cited

Hoerger, Fred and Eugene E. Kenaga. 1972. Pesticide Residues on Plants: Correlation of Representative Data as a Basis for Estimation of Their Magnitude in the Environment. Environmental Quality. Academic Press, New York, I: 9-28.

U.S. EPA 1986. Hazard Evaluation Division Standard Evaluation Procedure - Ecological Risk Assessment. United States Environmental Protection Agency, Office of Pesticide Programs, Washington, D.C. EPA 540/9-85-001. 96pp.